

### Claims

What is claimed is:

1. An adjustable piston pump for displacement and or extraction of remnant from soft soil and or soft sand comprises: a pump casing cylinder with handle for support, a shaft rod with handle and an adjustable piston. The pump casing cylinder is open at one end, capped at the other end and accepts a movable shaft rod through the center of the capped end of the pump casing cylinder. The shaft rod is retractable through the center of the capped end of the pump casing cylinder and is connected to its' own handle. The end of the shaft rod that connects to its handle extends outside the capped end of the pump casing cylinder. The portion of the shaft rod that extends through the capped end of the pump casing cylinder and inside the body of the pump casing cylinder is attached to a movable adjustable piston that contains a flexible ball therein. The force applied to the seal of the adjustable piston is governed by rotating the handle clockwise or counter-clockwise followed by the upward and downward pumping of the shaft rod.
2. An adjustable piston pump for displacement and or extraction of remnant from soft soil and or soft sand as claimed in claim 1 wherein said first member has an adjustable piston. An adjustable piston contains a flexible ball that permits regulation of the pumping pressure as compression options are exercised. The handle on the end of the shaft rod turned in a clockwise direction compresses and deforms the flexible ball. This operation wedges the flexible ball more tightly against the inside wall of the pump casing cylinder and provides increased pumping power for bi-directional displacement and or extraction of remnant. The pump handle turned in the counter-clockwise direction conforms the flexible ball back to its original state subsequently decreasing the pumps' pumping power. This can be used in a bi-directional effort for the displacement and or extraction of remnant.
4. An adjustable piston pump for displacement and extraction of remnant from soft soil and or soft sand as claimed in claim 1 wherein said second member is bi-directional. Remnant from soft sand and or soft soil is displaced or extracted with each stroke of the shaft rod. A quick downward stroke displaces remnant and a quick upward stroke extracts remnant. When the displacement method is used remnant is flushed from within the holes of soft sand and or soft soil. When the extraction method is used a core sample can be extracted from soft sand and or soft soil as well as remnant from within the holes of soft sand and or soft soil. The core sample and or remnant is then retained in the open end area of the pump casing cylinder for storage.